2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601 Stantec 1060 Andrew Drive Suite 140 West Chester PA 19380

July 31, 2015

Project: Marcus Hook RCRA

Submittal Date: 07/16/2015 Group Number: 1577505 PO Number: MARCUS HOOK State of Sample Origin: PA

Client Sample Description	<u>Lancaster Labs (LL) #</u>
MW-17_20150715 Grab Groundwater	7969627
MW-28_20150715 Grab Groundwater	7969628
MW-30_20150715 Grab Groundwater	7969629
MW-40_20150715 Grab Groundwater	7969630
MW-86_20150715 Grab Groundwater	7969631
Trip Blank Water	7969632

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/.

ELECTRONIC Stantec COPY TO

Attn: Stephanie Andrews

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Respectfully Submitted,

Amek Carter Specialist

(717) 556-7252



Analysis Report

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Sample Description: MW-17_20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969627 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Collected: 07/15/2015 10:33 by C Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

1,400

Reported: 07/31/2015 07:16

00612 SGT-HEM (TPH)

UЗ

MHR17

CAT No.	Analysis Name			CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS	Volatiles	EPA	624		ug/l	ug/l	
10371	Benzene			71-43-2	N.D.	0.9	1
10371	Ethylbenzene			100-41-4	N.D.	0.8	1
10371	Toluene			108-88-3	N.D.	0.8	1
10371	Xylene (total)			1330-20-7	N.D.	0.9	1
GC/MS	Semivolatiles	EPA	625		ug/l	ug/l	
10334	Acenaphthene			83-32-9	N.D.	0.3	1
10334	Anthracene			120-12-7	N.D.	0.2	1
10334	Benzo(a)anthracene			56-55-3	N.D.	0.2	1
10334	Benzo(a)pyrene			50-32-8	N.D.	0.3	1
10334	Di-n-butylphthalate			84-74-2	N.D.	0.5	1
10334	Chrysene			218-01-9	N.D.	0.2	1
10334	bis(2-Ethylhexyl)ph	thalat	te	117-81-7	N.D.	0.9	1
10334	Fluorene			86-73-7	N.D.	0.3	1
10334	Naphthalene			91-20-3	N.D.	0.2	1
10334	Phenanthrene			85-01-8	N.D.	0.2	1
10334	Phenol			108-95-2	N.D.	0.4	1
Metals	5	SW-8	346 601	LOB	ug/l	ug/l	
07051	Chromium			7440-47-3	28.9	1.5	1
07055	Lead			7439-92-1	23.6	5.1	1
Wet Ch	nemistry	EPA	335.4		ug/l	ug/l	
00237	Total Cyanide (wate			57-12-5	N.D.	5.0	1
		EPA	1664A		ug/l	ug/l	

General Sample Comments

N.D.

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

n.a.

Laboratory	Sample	Analysis	Record
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CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	BTEX by 624	EPA 624	1	M151982AA	07/18/2015 07:13	Jason M Long	1
10334	SVOCs 625	EPA 625	1	15198WAI625	07/21/2015 11:11	Linda M Hartenstine	1
08108	625 Water Extraction	EPA 625	1	15198WAI625	07/19/2015 20:10	David V Hershey Ji	1
07051	Chromium	SW-846 6010B	1	152081848002	07/28/2015 16:22	Eric L Eby	1
07055	Lead	SW-846 6010B	1	152081848002	07/28/2015 16:22	Eric L Eby	1
01848	ICP-WW, 3005A (tot rec) -	SW-846 3005A	1	152021848002	07/22/2015 09:04	James L Mertz	1



Analysis Report

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Sample Description: MW-17_20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969627 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 10:33 by C Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

	Laboratory Sample Analysis Record								
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor		
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	2	152081848002	07/28/2015 05:46	James L Mertz	1		
00237	Total Cyanide (water)	EPA 335.4	1	15205102101B	07/27/2015 12:35	David A Seavey	1		
00492	Cyanide Water Distillation	EPA 335.4	1	15205102101B	07/24/2015 13:09	Jonathan T Tomayk	o 1		
00612	SGT-HEM (TPH)	EPA 1664A	1	15209807801A	07/28/2015 17:28	Michelle L Lalli	1		



Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-28 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969628 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 08:44 by C Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

MHR28

CAT No.	Analysis Name			CAS Number	Resul	t	Method Detection Limit	Dilution Factor
GC/MS	Volatiles	EPA	624		ug/l		ug/l	
10371	Benzene			71-43-2	N.D.		0.9	1
10371	Ethylbenzene			100-41-4	N.D.		0.8	1
10371	Toluene			108-88-3	N.D.		0.8	1
10371	Xylene (total)			1330-20-7	N.D.		0.9	1
GC/MS	Semivolatiles	EPA	625		ug/l		ug/l	
10334	Acenaphthene			83-32-9	N.D.		0.3	1
10334				120-12-7	N.D.		0.2	1
10334	Benzo(a)anthracene			56-55-3	N.D.		0.2	1
10334	Benzo(a)pyrene			50-32-8	N.D.		0.3	1
10334	Di-n-butylphthalate			84-74-2	N.D.		0.5	1
10334	Chrysene			218-01-9	N.D.		0.2	1
10334	bis(2-Ethylhexyl)ph	thalat	te	117-81-7	1	J	0.9	1
10334	Fluorene			86-73-7	N.D.		0.3	1
10334	Naphthalene			91-20-3	N.D.		0.2	1
10334	Phenanthrene			85-01-8	N.D.		0.2	1
10334	Phenol			108-95-2	N.D.		0.4	1
Metals	5	SW-8	346 601	.0B	ug/l		ug/l	
07051	Chromium			7440-47-3	204		1.5	1
07055	Lead			7439-92-1	N.D.		5.1	1
Wet Ch	nemistry	EPA	335.4		ug/l		ug/l	
00237	Total Cyanide (wate:			57-12-5	N.D.		5.0	1
		EPA	1664A		ug/l		ug/l	
00612	SGT-HEM (TPH)			n.a.	N.D.		1,400	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory	Sample	Analysis	Record
паротасоту	Sampre	ппатуртр	Kecora

			_				
CAT	Analysis Name	Method	Trial#	Batch#	Analysis	Analyst	Dilution
No.					Date and Time		Factor
10371	BTEX by 624	EPA 624	1	M151982AA	07/18/2015 07:3	8 Jason M Long	1
10334	SVOCs 625	EPA 625	1	15198WAI625	07/21/2015 11:3	8 Linda M	1
						Hartenstine	
08108	625 Water Extraction	EPA 625	1	15198WAI625	07/19/2015 20:1	O David V Hershey J	r 1
07051	Chromium	SW-846 6010B	1	152081848002	07/28/2015 16:2	6 Eric L Eby	1
07055	Lead	SW-846 6010B	2	152081848002	07/28/2015 16:2	6 Eric L Eby	1
01848	ICP-WW, 3005A (tot rec) -	SW-846 3005A	1	152021848002	07/22/2015 09:0	4 James L Mertz	1
	U3						



Analysis Report

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Sample Description: MW-28 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969628 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Collected: 07/15/2015 08:44 by C

1060 Andrew Drive

Suite 140

Stantec

West Chester PA 19380

Submitted: 07/16/2015 19:00 Reported: 07/31/2015 07:16

	Laboratory Sample Analysis Record							
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor	
01848	ICP-WW, 3005A (tot rec) U3	- SW-846 3005A	2	152081848002	07/28/2015 05:46	James L Mertz	1	
00237	Total Cyanide (water)	EPA 335.4	1	15205102101B	07/27/2015 12:36	David A Seavey	1	
00492	Cyanide Water Distillation	EPA 335.4	1	15205102101B	07/24/2015 13:09	Jonathan T Tomayko	o 1	
00612	SGT-HEM (TPH)	EPA 1664A	1	15209807801A	07/28/2015 17:28	Michelle L Lalli	1	



Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-30 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969629 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 09:34 by C

1060 Andrew Drive

Suite 140

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West Chester PA 19380

MHR30

UЗ

CAT No.	Analysis Name			CAS Number	Result	t		thod tection Limit	Dilution Factor
GC/MS	Volatiles	EPA	624		ug/l		ug,	/1	
10371	Benzene			71-43-2	N.D.		0.9	9	1
10371	Ethylbenzene			100-41-4	N.D.		0.8	3	1
10371	Toluene			108-88-3	N.D.		0.8	3	1
10371	Xylene (total)			1330-20-7	N.D.		0.9	€	1
GC/MS	Semivolatiles	EPA	625		ug/l		ug/	/1	
10334	Acenaphthene			83-32-9	N.D.		0.3	3	1
10334	Anthracene			120-12-7	N.D.		0.2	2	1
10334	Benzo(a)anthracene			56-55-3	N.D.		0.2	2	1
10334	Benzo(a)pyrene			50-32-8	N.D.		0.3	3	1
10334	Di-n-butylphthalate			84-74-2	N.D.		0.5	5	1
10334	Chrysene			218-01-9	N.D.		0.2	2	1
10334	bis(2-Ethylhexyl)ph	thalat	ce	117-81-7	N.D.		0.9	9	1
10334	Fluorene			86-73-7	N.D.		0.3	3	1
10334	Naphthalene			91-20-3	0.7	J	0.2	2	1
10334	Phenanthrene			85-01-8	N.D.		0.2	2	1
10334	Phenol			108-95-2	N.D.		0.4	1	1
Metals	5	SW-8	346 601	L0B	ug/l		ug/	/1	
07051	Chromium			7440-47-3	45.2		1.5	5	1
07055	Lead			7439-92-1	N.D.		5.1	l	1
Wet Cl	nemistry	EPA	335.4		ug/l		ug,	/1	
00237	Total Cyanide (water	r)		57-12-5	N.D.		5.0)	1
		EPA	1664A		ug/l		ug,	/1	
00612	SGT-HEM (TPH)			n.a.	N.D.		1,4	100	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory	Sample	Analysis	Record
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CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	BTEX by 624	EPA 624	1	M151982AA	07/18/2015 08:04	Jason M Long	1
10334	SVOCs 625	EPA 625	1	15198WAI625	07/21/2015 12:03	Linda M	1
						Hartenstine	
08108	625 Water Extraction	EPA 625	1	15198WAI625	07/19/2015 20:10	David V Hershey J	1
07051	Chromium	SW-846 6010B	1	152081848002	07/28/2015 16:29	Eric L Eby	1
07055	Lead	SW-846 6010B	2	152081848002	07/28/2015 16:29	Eric L Eby	1
01848	ICP-WW, 3005A (tot rec) -	SW-846 3005A	1	152021848002	07/22/2015 09:04	James L Mertz	1



Analysis Report

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Sample Description: MW-30 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969629 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 09:34 by C Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

Laboratory Sample Analysis Record								
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor	
01848	ICP-WW, 3005A (tot rec) U3	- SW-846 3005A	2	152081848002	07/28/2015 05:46	James L Mertz	1	
00237	Total Cyanide (water)	EPA 335.4	1	15205102101B	07/27/2015 12:37	David A Seavey	1	
00492	Cyanide Water Distillation	EPA 335.4	1	15205102101B	07/24/2015 13:09	Jonathan T Tomayko	o 1	
00612	SGT-HEM (TPH)	EPA 1664A	1	15209807801A	07/28/2015 17:28	Michelle L Lalli	1	



Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-40 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969630 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 13:55 by C Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

MHR40

CAT No.	Analysis Name		CAS Number	Result	=	Method Detection Limit	Dilution Factor
GC/MS	Volatiles	EPA 624		ug/l		ug/l	
10371	Benzene		71-43-2	4.0		0.9	1
	Ethylbenzene		100-41-4	N.D.		0.8	1
	Toluene		108-88-3	15		0.8	1
10371	Xylene (total)		1330-20-7	2	J	0.9	1
GC/MS	Semivolatiles	EPA 625		ug/l		ug/l	
10334	Acenaphthene		83-32-9	N.D.		3	10
	Anthracene		120-12-7	3	J	2	10
	Benzo(a)anthracene		56-55-3	4	J	2	10
10334	Benzo(a)pyrene		50-32-8	N.D.		3	10
10334		:	84-74-2	N.D.		5	10
10334	Chrysene		218-01-9	N.D.		2	10
10334	bis(2-Ethylhexyl)ph	thalate	117-81-7	N.D.		9	10
10334	Fluorene		86-73-7	N.D.		3	10
10334	Naphthalene		91-20-3	5	J	2	10
10334	Phenanthrene		85-01-8	4	J	2	10
10334	Phenol		108-95-2	62		4	10
but devi	LCS and/or LCSD reco within the marginal ations as defined in ytes are accepted ba ol	exceedance all the NELAC St	llowance of $+/-$ andards. The	4 stand	lard		
Metals	3	SW-846 60	10B	ug/l		ug/l	
07051	Chromium		7440-47-3	69.3		1.5	1
07055	Lead		7439-92-1	150		5.1	1
Wet Cl	nemistry	EPA 335.4	ı	ug/l		ug/l	
00237	Total Cyanide (wate	er)	57-12-5	N.D.		5.0	1
		EPA 1664A		ug/l		ug/l	
00612	SGT-HEM (TPH)		n.a.	N.D.		1,400	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name Method		Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor	
10371	BTEX by 624	EPA 624	1	M151982AA	07/18/2015	08:29	Jason M Long	1	
10334	SVOCs 625	EPA 625	1	15198WAI625	07/21/2015	12:26	Linda M Hartenstine	10	
08108	625 Water Extraction	EPA 625	1	15198WAI625	07/19/2015	20.10	David V Hershev Jr	1	



Analysis Report

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Sample Description: MW-40 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969630 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 13:55 by C

1060 Andrew Drive

Suite 140

Stantec

West Chester PA 19380

		Labora	tory Sa	ample Analysi	is Record		
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07051	Chromium	SW-846 6010B	1	152081848002	07/28/2015 16:4	0 Eric L Eby	1
07055	Lead	SW-846 6010B	1	152081848002	07/28/2015 16:4	0 Eric L Eby	1
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	1	152021848002	07/22/2015 09:0	4 James L Mertz	1
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	2	152081848002	07/28/2015 05:4	6 James L Mertz	1
00237	Total Cyanide (water)	EPA 335.4	1	15205102101B	07/27/2015 12:3	8 David A Seavey	1
00492	Cyanide Water Distillation	EPA 335.4	1	15205102101B	07/24/2015 13:0	9 Jonathan T Tomayk	0 1
00612	SGT-HEM (TPH)	EPA 1664A	1	15209807801A	07/28/2015 17:2	8 Michelle L Lalli	1



Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-86 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969631 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 11:31 by C

Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

MHR86

UЗ

CAT No.	Analysis Name		CAS Number	Result			Method Detection Limit	Dilution Factor
GC/MS	Volatiles	EPA 624		ug/l			ug/l	
10371	Benzene		71-43-2	N.D.			0.9	1
10371	Ethylbenzene		100-41-4	N.D.			0.8	1
10371	Toluene		108-88-3	N.D.			0.8	1
10371	Xylene (total)		1330-20-7	N.D.			0.9	1
GC/MS	Semivolatiles	EPA 625		ug/l			ug/l	
10334	Acenaphthene		83-32-9	N.D.			0.3	1
10334	Anthracene		120-12-7	N.D.			0.2	1
10334	Benzo(a)anthracene		56-55-3	N.D.			0.2	1
10334	Benzo(a)pyrene		50-32-8	N.D.			0.3	1
10334	Di-n-butylphthalate		84-74-2	N.D.			0.5	1
10334	Chrysene		218-01-9	N.D.			0.2	1
10334	bis(2-Ethylhexyl)ph	thalate	117-81-7	N.D.			0.9	1
10334	Fluorene		86-73-7	N.D.			0.3	1
10334	Naphthalene		91-20-3	N.D.			0.2	1
10334	Phenanthrene		85-01-8	N.D.			0.2	1
10334	Phenol		108-95-2	N.D.			0.4	1
Metals	3	SW-846 601	.0В	ug/l			ug/l	
07051	Chromium		7440-47-3	2.3	J		1.5	1
07055	Lead		7439-92-1	N.D.			5.1	1
Wet Ch	nemistry	EPA 335.4		ug/l			ug/l	
00237			57-12-5	N.D.			5.0	1
00257	iocai cyanitae (wate.	- /	J, 12 J	11.1.			3.0	<u> </u>
		EPA 1664A		ug/l			ug/l	
00612	SGT-HEM (TPH)		n.a.	1,900		J	1,400	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory	Sample	Analysis	Record
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CAT No.	Analysis Name	Method		Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	BTEX by 624	EPA 624	1	M151982AA	07/18/2015 08:54	Jason M Long	1
10334	SVOCs 625	EPA 625	1	15199WAC625	07/21/2015 14:25	Linda M	1
						Hartenstine	
08108	625 Water Extraction	EPA 625	1	15199WAC625	07/19/2015 21:15	Nicholas W Shroyer	1
07051	Chromium	SW-846 6010B	1	152081848002	07/28/2015 16:44	Eric L Eby	1
07055	Lead	SW-846 6010B	2	152081848002	07/28/2015 16:44	Eric L Eby	1
01848	ICP-WW, 3005A (tot rec) -	SW-846 3005A	1	152021848002	07/22/2015 09:04	James L Mertz	1



Analysis Report

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Sample Description: MW-86 20150715 Grab Groundwater

Sunoco M.H. (RCRA)

LL Sample # WW 7969631 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Collected: 07/15/2015 11:31 by C Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

Laboratory Sample Analysis Record									
CAT No.	Analysis Name		Method	Trial#	Batch#	Analysis Date and Ti	me	Analyst	Dilution Factor
01848	ICP-WW, 3005A (U3	tot rec) -	SW-846 3005A	2	152081848002	07/28/2015	05:46	James L Mertz	1
00237	Total Cyanide (water)	EPA 335.4	1	15205102101B	07/27/2015	12:40	David A Seavey	1
00492	Cyanide Water Distillation		EPA 335.4	1	15205102101B	07/24/2015	13:09	Jonathan T Tomayko	1
00612	SGT-HEM (TPH)		EPA 1664A	1	15209807801A	07/28/2015	17:28	Michelle L Lalli	1



Analysis Report

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Sample Description: Trip Blank Water

Sunoco M.H. (RCRA)

LL Sample # WW 7969632 LL Group # 1577505 Account # 16657

Project Name: Marcus Hook RCRA

Collected: 07/15/2015

Submitted: 07/16/2015 19:00

Reported: 07/31/2015 07:16

Stantec

1060 Andrew Drive

Suite 140

West Chester PA 19380

MHRTB

CAT No.	Analysis Name		CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS	Volatiles	EPA 624		ug/l	ug/l	
10371	Benzene		71-43-2	N.D.	0.9	1
10371	Ethylbenzene		100-41-4	N.D.	0.8	1
10371	Toluene		108-88-3	N.D.	0.8	1
10371	Xylene (total)		1330-20-7	N.D.	0.9	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT	Analysis Name Method		Trial#	Batch#	Analysis	Analyst	Dilution
No.					Date and Time		Factor
10371	BTEX by 624	EPA 624	1	M151982AA	07/18/2015 06:48	Jason M Long	1



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Quality Control Summary

Client Name: Stantec Group Number: 1577505

Reported: 07/31/2015 07:16

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	G 1	<u> </u>		<u> </u>				
Batch number: M151982AA	Sample num					00 100		
Benzene	N.D.	0.9	ug/l	91		80-120		
Ethylbenzene	N.D.	0.8	ug/l	95		80-120		
Toluene	N.D.	0.8	ug/l	97		80-120		
Xylene (total)	N.D.	0.9	ug/l	94		80-120		
Batch number: 15198WAI625	Sample num	ber(s): 79	69627-7969	0630				
Acenaphthene	N.D.	0.3	ug/l	99	100	83-117	1	30
Anthracene	N.D.	0.2	uq/l	102	104	75-116	2	30
Benzo(a)anthracene	N.D.	0.2	ug/l	101	106	76-117	6	30
Benzo(a) pyrene	N.D.	0.3	ug/l	97	107	84-111	10	30
Di-n-butylphthalate	N.D.	0.5	ug/l	101	106	84-116	5	30
Chrysene	N.D.	0.2	ug/l	110	112	81-118	3	30
bis(2-Ethylhexyl)phthalate	N.D.	1.	ug/l	107	109	84-116	2	30
Fluorene	N.D.	0.3	uq/l	102	103	80-116	1	30
Naphthalene	N.D.	0.2	uq/l	96	99	71-109	4	30
Phenanthrene	N.D.	0.2	uq/l	100	103	80-119	3	30
Phenol	N.D.	0.4	ug/1	63	67*	19-66	5	30
THEHET	11.2.	0.1	49/1	03	0 7	15 00	5	30
Batch number: 15199WAC625	Sample num	ber(s): 79	69631					
Acenaphthene	N.D.	0.3	ug/l	98	98	83-117	1	30
Anthracene	N.D.	0.2	ug/l	98	99	75-116	1	30
Benzo(a)anthracene	N.D.	0.2	uq/l	99	101	76-117	3	30
Benzo(a)pyrene	N.D.	0.3	ug/l	99	100	84-111	1	30
Di-n-butylphthalate	N.D.	0.5	ug/l	99	99	84-116	0	30
Chrysene	N.D.	0.2	uq/l	103	107	81-118	3	30
bis(2-Ethylhexyl)phthalate	N.D.	1.	ug/l	106	105	84-116	1	30
Fluorene	N.D.	0.3	ug/l	98	100	80-116	3	30
Naphthalene	N.D.	0.2	uq/l	90	87	71-109	3	30
Phenanthrene	N.D.	0.2	uq/l	98	98	80-119	0	30
Phenol	N.D.	0.4	ug/l	32	33	19-66	5	30
D-t	G 1	1 ()	60608 8060					
Batch number: 152081848002	Sample num					00 100		
Chromium	N.D.	1.5	ug/l	102		80-120		
Lead	N.D.	5.1	ug/l	107		80-120		
Batch number: 15205102101B	Sample num	ber(s): 79	69627-7969	631				
Total Cyanide (water)	N.D.	5.0	ug/l	100		90-110		
Batch number: 15209807801A	Sample num	ber(s): 79	69627-7969	0631				
SGT-HEM (TPH)	N.D.	1,400.	ug/l	66	66	64-114	1	18

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



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Quality Control Summary

Client Name: Stantec Group Number: 1577505

Reported: 07/31/2015 07:16

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD <u>Limits</u>	RPD	RPD <u>MAX</u>	BKG Conc	DUP Conc	DUP <u>RPD</u>	Dup RPD <u>Max</u>
Batch number: M151982AA	Sample	number(s)	: 7969627	-796963	32 UNSP	K: P966817			
Benzene	98	100	83-132	2	30				
Ethylbenzene	102	103	82-124	1	30				
Toluene	104	105	84-123	1	30				
Xylene (total)	102	101	79-130	0	30				
Batch number: 152081848002 Chromium Lead	Sample 100 100	number(s) 100 101	: 7969627 75-125 75-125	-796963 0 2	31 UNSP 20 20	PK: P970158 90.4 8.0 J	BKG: P970158 89.9 8.0 J	3 0 0 (1)	20 20
Batch number: 15205102101B Total Cyanide (water)	Sample 83*	number(s)	: 7969627 90-110	-796963	31 UNSP	K: P968611 N.D.	BKG: P968613 N.D.	0 (1)	20
Batch number: 15209807801A SGT-HEM (TPH)	Sample 65	number(s) 60*	: 7969627 64-132	-796963 2	31 UNSP 25	K: P970251 N.D.	BKG: P970253 N.D.	0 (1)	24

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX by 624

Batch nu	mber: M151982AA		
	1,2-Dichloroethane-d4	Fluorobenzene	4-Bromofluorobenzene
7969627	104	98	102
7969628	103	99	100
7969629	102	98	101
7969630	103	98	102
7969631	102	98	103
7969632	102	98	101
Blank	103	99	101
LCS	100	99	98
MS	102	100	101
MSD	99	98	99
Limits:	78-118	88-107	80-118

Analysis Name: SVOCs 625

Batch number: 15198WAI625

Batch nu	mber: 15198WA1625					
	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
7969627	88	87	77	33	54	84
7969628	87	84	87	30	48	82
7969629	90	88	91	44	66	92
7969630	81	86	87	33	52	78
Blank	92	90	97	51	69	96
LCS	92	94	97	58	75	92
LCSD	97	96	98	59	77	91
Limits:	69-123	76-123	69-130	10-77	10-114	10-173

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



Analysis Report

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Quality Control Summary

Client Name: Stantec Group Number: 1577505

Reported: 07/31/2015 07:16

Surrogate Quality Control

Analysis Name: SVOCs 625 Batch number: 15199WAC625

200011 110		20				
	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
7969631	89	91	94	27	37	74
Blank	93	88	93	25	42	95
LCS	94	93	95	28	46	89
LCSD	90	92	97	30	48	86
Limits:	69-123	76-123	69-130	10-77	10-114	10-173

^{*-} Outside of specification

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody



neurofins :

Lancaster Laboratories Environmental

	TOTAL STREET,								
382922									

1) Client Information Client: Acct. #:				Matrix			(5)		An	alysis	Request	ed		For Lab U	se Only		
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I NYSDEC Category A or B MAIMCP CTRCP I				(If yes, indicate QC sample and submit triplicate sample volume.)				<u> </u>	Parametria (



Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
μg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m3	cubic meter(s)	μL	microliter(s)
		pg/L	picogram/liter

less than <

greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Results printed under this heading have been adjusted for moisture content. This increases the analyte weight Dry weight basis

concentration to approximate the value present in a similar sample without moisture. All other results are reported on an

as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank

C - Result confirmed by reanalysis

E - Concentration exceeds the calibration range

J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and the < Limit of Quantitation (LOQ or RL)

P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.

U - Analyte was not detected at the value indicated

V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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